

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 15-26, 30-33, 37, 38, 40, 44, 51, 55, 59-65 and 67-79 are presently pending in this application. Claims 15-18, 20, 23-26, 30-33, 37, 38, 40, 44, 51, 55, 59, 62-65 and 67-79 remain withdrawn from consideration, Claims 27-29, 34-36, 39, 41-43, 45-50, 52-54, 56-58 and 66 are canceled without prejudice or disclaimer, and Claims 19-26, 30-33, 37, 38, 40, 44, 51, 55 and 59-65 are amended by the present amendment. Support for amended Claims 19-26, 30-33, 37, 38, 40, 44, 51, 55 and 59-65 can be found at least at page 17, line 13 to page 18, line 5 of the specification, and in Figure 18 and the corresponding description thereof, for example. Further, these claims are amended for other clarification. No new matter is added.

In the outstanding Office Action, Claim 19 was rejected under 35 U.S.C. § 102(b) as anticipated by Masuda et al. (U.S. Patent 5,999,774, herein "Masuda"); Claim 19 was rejected under 35 U.S.C. § 102(b) as anticipated by Kouno et al. (U.S. Patent 5,832,354, herein "Kouno"); Claims 21, 22, 60 and 61 were rejected under 35 U.S.C. § 102(e) as anticipated by Takagi et al. (U.S. Patent 6,337,969, herein "Takagi"); and Claims 21, 22, 56, 57, 60, 61 and 66 were rejected under 35 U.S.C. § 103(a) as unpatentable over Masuda or Kouno in view of Takagi or McGaffigan et al. (U.S. Patent 5,376,774, herein "McGaffigan").

Addressing now the rejection of Claim 19 under 35 U.S.C. § 102(b) as anticipated by Masuda and the rejection of Claim 19 under 35 U.S.C. § 102(b) as anticipated by Kouno, these rejections are respectfully traversed as discussed next.

Claim 19 is directed to an induction heating coil for an induction heating type fixing device including a heat roller, comprising:

... a main coil having two leads positioned inside said heat roller at a center portion substantially corresponding to a main sheet passing range;

a first auxiliary coil having two leads positioned inside said heat roller at a first portion other than the center portion, said first portion being located on a first side of the center portion and substantially corresponding to an auxiliary sheet passing range; and

a second auxiliary coil having two leads positioned inside said heat roller at a second portion other than the center portion, said second portion being located on a second side of the center portion opposite the first side and substantially corresponding to said auxiliary sheet passing range,

wherein one of said two leads of said first auxiliary coil and one of said two leads of said second auxiliary coil are interconnected over said main coil.

In a non-limiting example, Figure 18 (see also page 17, line 13 to page 18, line 5 of the specification and Figure 8A, and page 25, lines 2-16 of the specification for reference purposes) illustrates an induction heating coil including a main coil 11 having two leads 31L, 31R positioned inside a heat roller at a center portion substantially corresponding to a main sheet passing range, and a first auxiliary coil 12 having two leads 32L, 32R positioned inside the heat roller at a first portion other than the center portion, wherein the first portion is located on a first side of the center portion and substantially corresponding to an auxiliary sheet passing range. The induction heating coil also includes a second auxiliary coil 13 having two leads 33L, 33R positioned inside the heat roller at a second portion other than the center portion, wherein the second portion is located on a second side of the center portion opposite the first side and substantially corresponding to the auxiliary sheet passing range. Further, one of the two leads 32R of the first auxiliary coil 12 and one of the two leads 33L of the second auxiliary coil 13 are interconnected over the main coil 11.

One of the benefits of such an induction heating coil is that a space inside a heat roller is efficiently used, and thus it is possible to minimize a size of a fixing device. Another

benefit of such an induction heating coil is that it is possible to minimize an irregularity in temperature distribution in the heat roller, and thus it is possible to obtain a higher image quality (see the specification at page 34, lines 20-23, and at page 36, lines 10-19, for example).

Turning to the reference of Masuda, Masuda discloses an induction coil 42 (see column 4, lines 58-60, and Figures 4A-B).

Turning to the reference of Kouno, Kouno discloses induction heating mechanisms 5011 to 501n that include induction coils 5031 to 503n wound around iron cores 5021 to 502n (see column 32, lines 13-26, and Figure 23).

However, it is respectfully submitted that neither Masuda nor Kouno discloses or suggests the induction heating coil as recited in amended Claim 19. For example, neither Masuda nor Kouno discloses or suggests the claimed positional relationship of the main coil, first auxiliary coil, and second auxiliary coil in the heat roller, and the claimed interconnection of the leads of the first and second auxiliary coils over the main coil.

Accordingly, it is respectfully submitted that Claim 19 patentably distinguishes over Masuda and Kouno.

In view of the foregoing remarks, Applicants respectfully request withdrawal of the rejection of Claim 19 under 35 U.S.C. § 102(b) as anticipated by Masuda and the rejection of Claim 19 under 35 U.S.C. § 102(b) as anticipated by Kouno.

Further, Applicants note that withdrawn Claim 20 is still pending in this application, and this withdrawn claim depends from independent Claim 19. That is, independent Claim 19 is generic to withdrawn Claim 20; therefore, Applicants respectfully submit Claim 20 must now be reinstated.

Addressing now the rejection of Claims 21, 22, 60 and 61 under 35 U.S.C. § 102(e) as anticipated by Takagi, that rejection is respectfully traversed as discussed next.

Claim 21 is directed to an induction heating coil for an induction heating fixing device including a heat roller, comprising:

... a main coil positioned inside said heat roller at a center portion substantially corresponding to a main sheet passing range;

a first auxiliary coil positioned inside said heat roller at a first portion other than the center portion, said first portion being located on a first side of the center portion and substantially corresponding to an auxiliary sheet passing range; and

a second auxiliary coil positioned inside said heat roller at a second portion other than the center portion, said second portion being located on a second side of the center portion opposite the first side and substantially corresponding to said auxiliary sheet passing range,

wherein each of said main coil, first auxiliary coil, and second auxiliary coil includes two leads one of which comprises a flat lead, and said flat lead of said first auxiliary coil and said flat lead of said second auxiliary coil are interconnected over said main coil.

In a non-limiting example, Figure 18 (see also page 17, line 13 to page 18, line 5 of the specification and Figure 8A, and page 25, lines 2-16 of the specification for reference purposes) illustrates an induction heating coil including a main coil 11 positioned inside a heat roller at a center portion substantially corresponding to a main sheet passing range, a first auxiliary coil 12 positioned inside the heat roller at a first portion other than the center portion, wherein the first portion is located on a first side of the center portion and substantially corresponding to an auxiliary sheet passing range, and a second auxiliary coil 13 positioned inside the heat roller at a second portion other than the center portion, wherein the second portion is located on a second side of the center portion opposite the first side and substantially corresponding to the auxiliary sheet passing range. Further, each of the main

coil, first auxiliary coil, and second auxiliary coil includes two leads (31L, 31R, 32L, 32R, 33L, 33R, respectively) one of which is a flat lead, and the flat lead 32R of the first auxiliary coil 12 and the flat lead 33L of the second auxiliary coil 13 are interconnected over the main coil 11.

One of the benefits of such an induction heating coil is that a space inside a heat roller is efficiently used, and thus it is possible to minimize a size of a fixing device. Another benefit of such an induction heating coil is that it is possible to minimize an irregularity in temperature distribution in the heat roller, and thus it is possible to obtain a higher image quality (see the specification at page 34, lines 20-23, and at page 36, lines 10-19, for example).

Turning to the reference of Takagi, Takagi discloses conductor rollers 11, 41, 81, and coils 15, 45, 85 (see Figures 2, 6 and 10). However, it is respectfully submitted that Takagi does not disclose or suggest the induction heating coil as recited in amended Claim 21. For example, Takagi does not disclose or suggest the claimed positional relationship of the main coil, first auxiliary coil, and second auxiliary coil in the heat roller, and the claimed interconnection of the leads of the first and second auxiliary coils over the main coil.

Accordingly, it is respectfully submitted that Claim 21 patentably distinguishes over Takagi.

Further, independent Claim 60 includes substantially the similar features, and thus the same arguments set forth above apply to this claim as well. Furthermore, Claims 22 and 61 should be allowed, among other reasons, as depending from one of Claims 21 and 60, which should be allowed as explained above.

In view of the foregoing remarks, Applicants respectfully request withdrawal of the rejection of Claims 21, 22, 60 and 61 under 35 U.S.C. § 102(e) as anticipated by Takagi.

In addition, Applicants note that withdrawn Claims 23-26, 30-33, 37, 38, 40, 44, 51, 55, 59 and 62-65 are still pending in this application, and these withdrawn claims depend from one of independent Claims 21 and 60. That is, independent Claims 21 and 60 are generic to withdrawn Claims 23-26, 30-33, 37, 38, 40, 44, 51, 55, 59 and 62-65; therefore, Applicants respectfully submit Claims 23-26, 30-33, 37, 38, 40, 44, 51, 55, 59 and 62-65 must now be reinstated.

Addressing now the rejection of Claims 21, 22, 56, 57, 60, 61 and 66 under 35 U.S.C. § 103(a) as unpatentable over Masuda or Kouno in view of Takagi or McGaffigan, that rejection is respectfully traversed as discussed next.

As presented above, Claim 21 is directed to an induction heating coil for an induction heating fixing device including a heat roller, comprising:

- ... a main coil positioned inside said heat roller at a center portion substantially corresponding to a main sheet passing range;
- a first auxiliary coil positioned inside said heat roller at a first portion other than the center portion, said first portion being located on a first side of the center portion and substantially corresponding to an auxiliary sheet passing range; and
- a second auxiliary coil positioned inside said heat roller at a second portion other than the center portion, said second portion being located on a second side of the center portion opposite the first side and substantially corresponding to said auxiliary sheet passing range,

wherein each of said main coil, first auxiliary coil, and second auxiliary coil includes two leads one of which comprises a flat lead, and said flat lead of said first auxiliary coil and said flat lead of said second auxiliary coil are interconnected over said main coil.

In a non-limiting example, Figure 18 (see also page 17, line 13 to page 18, line 5 of the specification and Figure 8A, and page 25, lines 2-16 of the specification for reference purposes) illustrates an induction heating coil including a main coil 11 positioned inside a

heat roller at a center portion substantially corresponding to a main sheet passing range, a first auxiliary coil 12 positioned inside the heat roller at a first portion other than the center portion, wherein the first portion is located on a first side of the center portion and substantially corresponding to an auxiliary sheet passing range, and a second auxiliary coil 13 positioned inside the heat roller at a second portion other than the center portion, wherein the second portion is located on a second side of the center portion opposite the first side and substantially corresponding to the auxiliary sheet passing range. Further, each of the main coil, first auxiliary coil, and second auxiliary coil includes two leads (31L, 31R, 32L, 32R, 33L, 33R, respectively) one of which is a flat lead, and the flat lead 32R of the first auxiliary coil 12 and the flat lead 33L of the second auxiliary coil 13 are interconnected over the main coil 11.

One of the benefits of such an induction heating coil is that a space inside a heat roller is efficiently used, and thus it is possible to minimize a size of a fixing device. Another benefit of such an induction heating coil is that it is possible to minimize an irregularity in temperature distribution in the heat roller, and thus it is possible to obtain a higher image quality (see the specification at page 34, lines 20-23, and at page 36, lines 10-19, for example).

Turning to the reference of Masuda, Masuda discloses an induction coil 42 (see column 4, lines 58-60, and Figures 4A-B).

Turning to the reference of Kouno, Kouno discloses induction heating mechanisms 5011 to 501n that include induction coils 5031 to 503n wound around iron cores 5021 to 502n (see column 32, lines 13-26, and Figure 23).

Turning to the reference of Takagi, Takagi discloses conductor rollers 11, 41, 81, and coils 15, 45, 85 (see Figures 2, 6 and 10).

Turning to the reference of McGaffigan, McGaffigan discloses a coil structure 2 including a first series of rings 4, 6, 8 and 10, and a second series of rings, 4', 6', 8' and 10' (see column 3, lines 24-27, and Figure 1).

However, it is respectfully submitted that none of Masuda, Kouno, Takagi and McGaffigan discloses or suggests the induction heating coil as recited in amended Claim 21. For example, none of Masuda, Kouno, Takagi and McGaffigan discloses or suggests the claimed positional relationship of the main coil, first auxiliary coil, and second auxiliary coil in the heat roller, and the claimed interconnection of the leads of the first and second auxiliary coils over the main coil.

In addition, Applicants respectfully submit that the combination of Masuda, Kouno, Takagi and McGaffigan does not remedy the lack of teaching or disclosure related to the above-noted claimed features. Therefore, Masuda, Kouno, Takagi and McGaffigan, neither individually nor in any proper combination thereof, make obvious the invention recited in Claim 21.

Accordingly, it is respectfully submitted that Claim 21 patentably distinguishes over Masuda, Kouno, Takagi and McGaffigan, and that the above-noted benefits obtained thereby are not obviated.

Further, independent Claim 60 includes substantially the similar features, and thus the same arguments set forth above apply to this claim as well. Furthermore, Claims 22 and 61 should be allowed, among other reasons, as depending from one of Claims 21 and 60, which should be allowed as explained above.

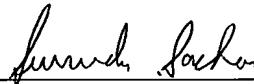
In view of the foregoing remarks, Applicants respectfully request withdrawal of the rejection of Claims 21, 22, 56, 57, 60, 61 and 66 under 35 U.S.C. § 103(a) as unpatentable over Masuda or Kouno in view of Takagi or McGaffigan.

In addition, Applicants note that withdrawn Claims 23-26, 30-33, 37, 38, 40, 44, 51, 55, 59 and 62-65 are still pending in this application, and these withdrawn claims depend from one of independent Claims 21 and 60. That is, independent Claims 21 and 60 are generic to withdrawn Claims 23-26, 30-33, 37, 38, 40, 44, 51, 55, 59 and 62-65; therefore, Applicants respectfully submit Claims 23-26, 30-33, 37, 38, 40, 44, 51, 55, 59 and 62-65 must now be reinstated.

Consequently, in light of the above discussion, and in view of the present amendment, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

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